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DIVERSITY IN THE DIETETICS PROFESSION

by

Xin Yi Ter

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Science

Major: Clinical Nutrition

The University of Memphis

December, 2013

## **ABSTRACT**

Ter, Xin Yi. MS. The University of Memphis. December 2013. Diversity in the Dietetic Profession. Major Professor: Dr. Ruth Williams-Hooker.

Majority of Registered Dietitians (RD) in the United States are Caucasian females. This study aims to understand the factors associated with low enrollment of minority students in the dietetics major and difficulties faced in the process of becoming an RD. This was a descriptive survey research. Three sets of survey were given to ethnic minorities who were (1) undergraduate dietetic students in Tennessee, (2) undergraduate students not majoring in dietetics at University of Memphis, and (3) dietetic interns in Tennessee. Seventeen, eleven and six participants responded to survey 1, 2, and 3 respectively. Eight respondents (73%) from survey 2 reported never heard of RD. There is a negative perception that dietitians are underappreciated. Dietetics students and interns faced difficulties maintaining good grades and obtaining dietetic-related jobs during undergraduate. Interventions derived from the results focus in increasing marketing and publicity of the dietetics profession and assisting current ethnic minority dietetic students.

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# **CHAPTER 1**

## **INTRODUCTION**

According to the Academy of Nutrition and Dietetics<sup>1</sup> (AND) (formerly known as the American Dietetic Association (ADA)), Registered Dietitians (RD) have been identified as the experts in food and nutrition who can translate the science of nutrition into practical solutions for healthy living. In order to be qualified as an RD, one must earn a Bachelor's Degree with course work approved by the Academy of Nutrition and Dietetics Accreditation Council for Education in Nutrition and Dietetics (ACEND) and complete 1200 hours in an accredited supervised practice program.<sup>1</sup> One must also then pass the national examination and complete continuing professional educational requirements to maintain registration.<sup>1</sup>

According to the Commission on Dietetic Registration,<sup>2</sup> there are 86,578 RDs in the United States (US) as of December 1<sup>st</sup>, 2012. Among these RDs, 94.5 % are females, 3.5% are males and 2.0 % are not reported. The breakdowns of ethnicity or race are 82.2% Caucasians, 3.7% Asian, 2.7% African American, 2.8% Hispanic or Latino, 1.6% Native Hawaiian, Pacific Islander, 0.3% American Indian or Alaskan Native and 0.4% two or more ethnicity indicated.<sup>2</sup> The remaining 6.3% are either other ethnicity/ race, not reported or prefer not to disclose.<sup>2</sup> These data<sup>2</sup> showed that the population of RDs is not very diverse; most of the RDs are Caucasian females. Minorities in ethnic groups such as African American, Hispanic, Asian, Pacific Islander and Native American are underrepresented in the dietetics profession.

Research has shown that the differences in ethnicity and social group of health care providers often discourage consumers from seeking service or sharing intimate

information essential for the treatment with their health care providers.<sup>3</sup> It is also harder for the consumer to be compliant to the treatment or diet order suggested by the health care providers if they are from a different ethnic background.<sup>3</sup> Adequate representation of each minority group is essential for quality control and allowing minority clients that prefer a dietitian of same ethnic group, to access the necessary services.<sup>3</sup>

The importance of increasing diversity in dietetic profession is further magnified as the minority groups have higher prevalence of chronic diseases, poorer health outcomes and higher mortality rate as compared to the majority population (Caucasian).<sup>4</sup> Minorities are also more likely to have diseases such as heart disease, cancer, stroke, asthma, AIDS, obesity as compared to their Caucasian counterparts.<sup>4</sup> These differences may be caused by genes, environments, cultural practices and beliefs of different ethnic groups.<sup>4</sup> Socioeconomic differences may also contribute to the increase of disease incidence and mortality; however, adjustment for socioeconomic status among the ethnic groups reduces but does not completely eliminate these inequalities in health as proved in a previous study.<sup>5</sup>

The US government and the AND are aware of these findings and have tried to address this problem by initiating a few programs to attain a more diverse group of dietitians. The efforts include incentive programs, professional recruiting, networking groups and mentoring programs which are taking place nationwide.<sup>6</sup> For example, the US Department of Health and Human Services has awarded a \$ 93,000 grant to AND to develop a diversity mentoring project in year 2001 to increase diversity in the dietetics profession.<sup>3</sup> This project aims to assist dietetics education programs in developing mentoring programs for culturally diverse students and assist AND members in creating



community outreach program to promote dietetic careers to students that are preparing to enroll college.<sup>3</sup> Unfortunately, no significant increase in minority and male representatives in dietetic professions was observed over the past 11 years.<sup>6</sup>

To further understand the underlying problems of low diversity in dietetic profession, a survey study is conducted to assess the difficulties faced by current minority dietetic students in the Didactic Programs as well as minority dietetic interns that are enrolled in Dietetic Internship programs, specifically in the state of Tennessee.

Overall, this study hope to identify potential root causes of low diversity in RDs and the possible intervention to help underrepresented populations to successfully qualify as RDs. At the end of the research, suggestions may be submitted to AND for development of interventions to combat possible problems that are faced by students in the progress of becoming a RD. Hopefully with the increase of RDs from various minority populations, the health disparities can be decreased and the mortality rate of the minorities can be reduced.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Health Disparity**

According to the US Census 2010,<sup>7</sup> the US population's distribution by race and ethnicity is 72.4% Caucasian, 12.6 % African American, 4.8% Asian-American, 0.9% Indian (or Alaska Native), 0.2% Native Hawaiian (or other Pacific Islander), 6.2% some other races and 2.9% two or more races. Caucasian remains the predominant race in the US today; however it is projected that in the year 2050, the Caucasian population will be about 47%.<sup>8</sup> The minority ethnic groups are expected to increase significantly according to the Pew Research Center.<sup>8</sup> This population projection is important especially because of the health disparity among ethnic groups. Healthy People 2020 defines health disparity as “a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage”.<sup>9</sup> It is mentioned in this report<sup>9</sup> that health disparity may refer to people who have experienced greater obstacles to health care linked to discrimination that includes, but not limited to racial or ethnic group.

#### **2.2 Health Profile of Ethnic Groups**

Multiple research studies have been conducted to understand ethnic disparities in relation to health. House and Williams<sup>10</sup> described ethnic disparities in health as large and persistent, with an increasing trend in the US and other developed countries. To delineate some of the barriers relation to health disparities in minorities, it is important to first understand the differences in health among the different ethnic groups. Different ethnic groups are said to have different mortality rates, life expectancy, leading causes of death and prevalence in certain diseases.<sup>5,11,12</sup>

The US life expectancy in 2010 was 78.7 years and the ethnic group with the longest life expectancy is Hispanics (81.3 years), followed by Caucasian (78.8 years) and African American (74.7 years).<sup>11</sup> The difference in life expectancy in Hispanic and African American is as much as 6.6 years.<sup>11</sup> The mortality rate of the African American population is 1.2 times higher than that of the Caucasian population (918.1 and 754.1 respectively per 100,000 population).<sup>11</sup> The other ethnic groups such as Hispanic, Asian, Pacific Islander and Native American have lower mortality rate as compared to the Caucasian population.<sup>11</sup>

The leading causes of death in the US also varied among different ethnic groups.<sup>12</sup> The Caucasian population has higher mortality in chronic lower respiratory diseases and lower mortality in diabetes as compared to other ethnic groups.<sup>12</sup> Hispanics have higher mortality in chronic liver diseases and homicide but lower mortality in suicide and Alzheimer's disease.<sup>12</sup> As for African American population, there is high mortality rate in homicide, septicemia and HIV/AIDS and lower mortality rate in influenza and pneumonia, suicide and Alzheimer's disease.<sup>12</sup> American Indians also have higher incidence and mortality rate of chronic liver diseases.<sup>12</sup>

Some other important differences in prevalence of disease among ethnic groups are reported in an article by Pokras and Woo.<sup>5</sup> It is reported that there was an increase of 4.7% in breast cancer mortality for African American women and a decrease of 19.2% for Caucasian women during years 1985-97 although the actual numbers were not stated in the article.<sup>5</sup> It is also reported that two-thirds of newly diagnosed AIDS cases in the US in 1998 were among ethnic minority groups such as African American (21,515 cases),

Hispanics (9,566 cases), Asian (388 cases) and American Indians (148 cases) while the Caucasian new diagnosis of AIDS is believed to be lower.<sup>5</sup>

### **2.3 Influential Factors Related to Health**

The health differences mentioned above may be due to health disparities or genetic and biological factors. Williams, Lavizzo-Mourey and Warren<sup>13</sup> stated in an article that the biological characteristics and genetics among racial groups “are more alike than different” and therefore the hypothesis of biological in origin as the primary contributor of ethnic differences in health is not fully supported.<sup>13,14</sup> The example of a high prevalence of sickle cell disease in the African American population is used to demonstrate that the development of disease is mostly due to environmental factors instead of genetic make-up.<sup>13</sup> Another example used to demonstrate social disparities as the main factor in health differences is the prevalence of hypertension in the African American population.<sup>14</sup> African Americans have a higher incidence of hypertension as compared to their Caucasian counterparts in the US, however the prevalence of hypertension among Africans in Caribbean countries and Africa is low.<sup>14</sup> This suggests that higher rates of hypertension among African Americans compared with other ethnic groups are more likely to be due to social disparities.<sup>14</sup> It is important to note that genetic and biological characteristics should not be completely ruled out even though the contribution to health differences among ethnic groups is likely to be small.<sup>13,14</sup>

### **2.4 Ethnic Disparities**

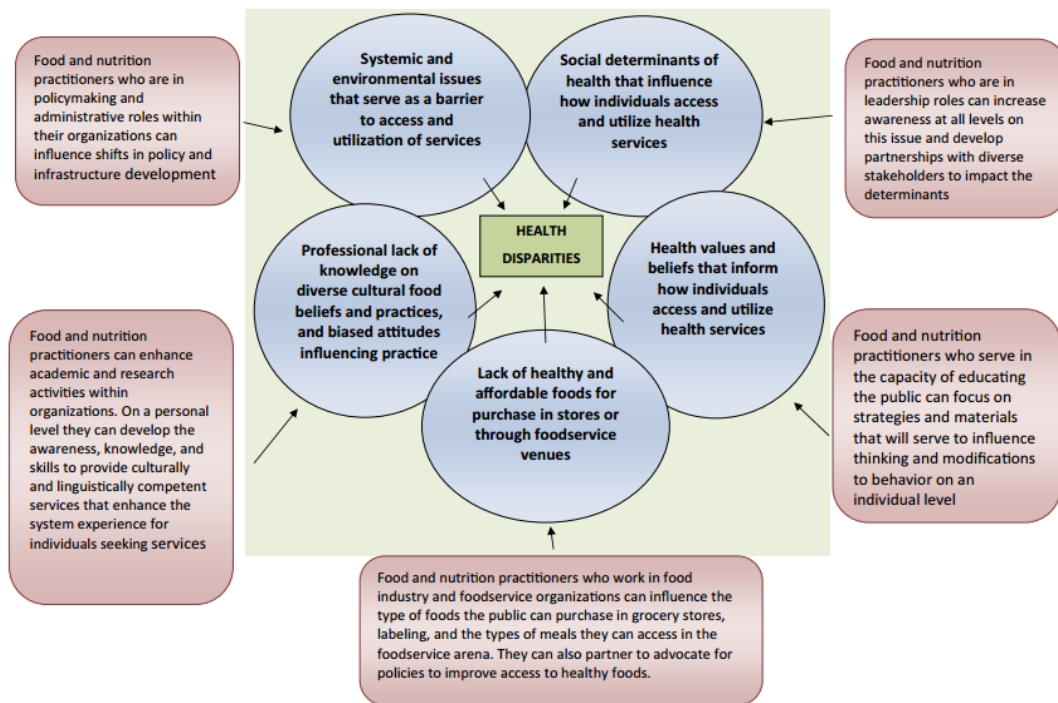
The suggestion of ethnic disparity as the major factor of health differences among ethnic groups is supported by former Secretary of Health and Human Services, Louis Sullivan who stated that ‘there is clear, demonstrable, undeniable evidence of

discrimination and racism in our health care system”.<sup>13</sup> Literature has shown differences in health care services provided and satisfaction of patients among different ethnic groups.<sup>15,16</sup> Fiscella, Franks, Doescher and Saver<sup>15</sup> used data collected from the Community Tracking Study (CTS) Household Survey conducted in 1996 and 1997 to study the effect of race, ethnicity and English fluency on health care use. Significant differences in health care services among ethnic groups were observed.<sup>15</sup> Spanish-speaking Hispanics experienced a significantly lower frequency of physician visits and mental health provider visits; as well as decreased influenza vaccinations or mammograms as compared to their Caucasian counterparts.<sup>15</sup>

Another study conducted by Saha, Arbalaez and Cooper<sup>16</sup> studied the relationship between racial differences in patient-physician relationships and disparities in quality of health care. Data from The Commonwealth Fund’s 2001 Health Care Quality Survey was analyzed to identify whether barriers in cross-cultural patient-physician relationships may be the contributing factor to ethnic health disparities.<sup>16</sup> The results showed that the quality of patient-physician interactions were generally lower among Hispanics and Asian respondents as compared to African American or Caucasian respondents.<sup>16</sup> Non-Caucasian respondents were less satisfied with the health care services as compared to Caucasian although the difference was not significant for African American.<sup>16</sup> The findings from the above two studies<sup>15,16</sup> illustrate the relationship between ethnic disparities and poor health outcomes and therefore it is important to combat ethnic disparities.

## **2.5 Multicultural Competence and Race Concordance**

Since the minority population is on the rise, health disparities due to ethnic differences need to be eliminated. One of the Healthy People 2020 goals is targeted to “achieve health equity, eliminate disparities, and improve the health of all groups.”<sup>9</sup> Multiple interventions have been designed and used by health care professionals to eliminate health disparity among minority ethnic groups. A registered dietitian (RD) is part of the health care professional team and should avoid any disparity during practice. The AND<sup>4</sup> published a practice paper to address racial and ethnic health disparities in 2011. It is stated in the practice paper<sup>4</sup> that nutrition plays an important role in the treatment and prevention of most of the leading causes of death in the US. Therefore, the RDs must be culturally competent in order to provide instructions and develop eating plans that are “culturally appropriate and nutritionally sound for the patient/client.”<sup>4</sup> The following diagram shows ways the RD can influence the elimination of ethnic health disparities as suggested by AND.<sup>4</sup>



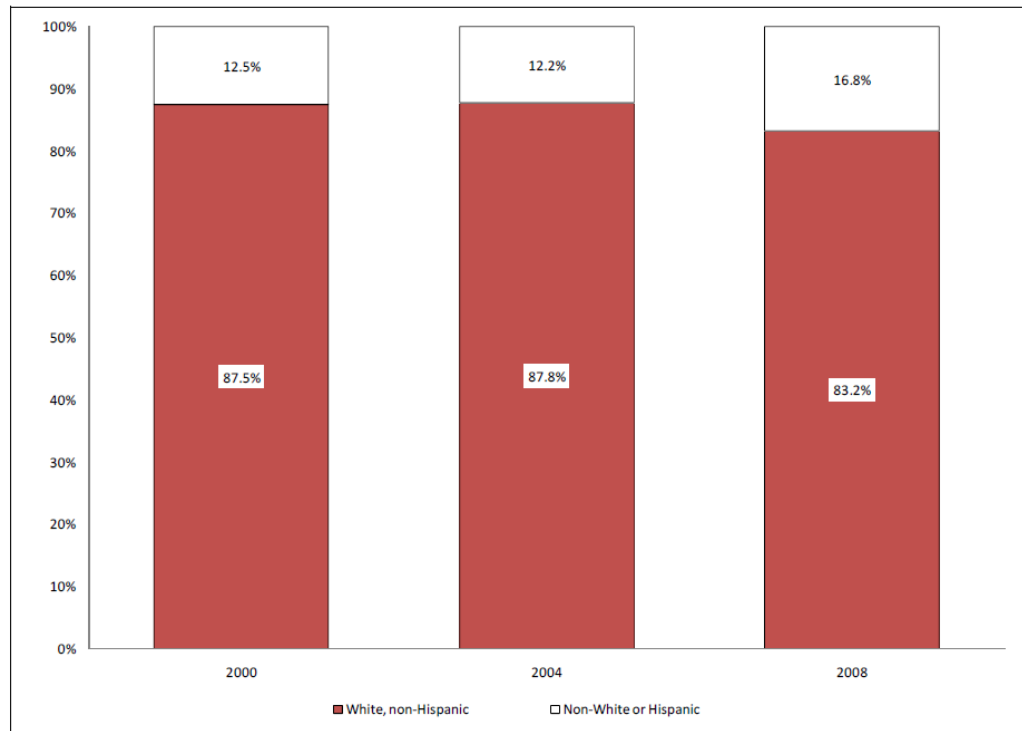
**Figure 1.** Ways in which the RD can influence the elimination of ethnic health disparities.<sup>4</sup>

One of the many recommendations stated in the Practice Paper<sup>4</sup> is to “increase the proportion of underrepresented US racial and ethnic minorities among health professionals”. The breakdowns of ethnicity or race of Registered Dietitians in the US is stated in Chapter I of this thesis.<sup>2</sup> As for the RDs in Tennessee state, the breakdowns are 88.0% Caucasian, 3.6% African American, 1.6% Asian, 0.6% Hispanic or Latino, 0.3% native Hawaiian or Pacific Islander, 0.2% American Indian or Alaskan Native and 0.3% two or more ethnicities indicated as of April 2012 according to the AND’s Data Management Information System (DMIS).<sup>17</sup> The remaining 5.4% are of other ethnicity/race, not reported or preferred not to disclose.<sup>17</sup> The statistics showed that the

dietetic profession is not very diverse and it is stated in the Practice Paper<sup>4</sup> that a diverse workforce will be useful in decreasing health disparities.

As a comparison, the physician's population in US is more ethnically diverse and reflective of the US population ethnicity breakdowns. According to the 2008 Health Tracking Physician Survey<sup>18</sup>, the breakdowns of physicians ethnicity are 73.7% Caucasian American, 17.2 % Asian or other races, 5.3% Hispanic, and 3.8% African American. This is very similar to the ethnicity breakdowns reported in US Census 2010<sup>7</sup> which is 72.4% Caucasian and 27.6% of other ethnic minority groups. On the other hand, the ethnicity breakdown of the Registered Nurse population according to the Demographics of the Registered Nurse Workforce<sup>19</sup> is showed in the figure 2. The number of Registered Nurse from non-Caucasian ethnicity has increased over the years from 12.2% to 16.8% in 2008.





**Figure 2.** Ethnic Demographics of the Registered Nurse Workforce.<sup>19</sup>

Many studies have suggested that race concordance in the health care setting can decrease health disparities.<sup>20-22</sup> Race concordance means the health care providers and the patient are from the same race or ethnic groups.<sup>20</sup> Joiner<sup>20</sup> reviewed the effectiveness of racial concordance as a method to decrease health care disparities in this study; it was reported that race-concordant visits were longer and resulted in better satisfaction and positive patient outcomes. The cohort study conducted by Cooper et al.<sup>21</sup> observed the same result in 252 patients who received race concordance visits. On the other hand, shorter duration of visits, lower patient satisfaction and poor patient outcomes were observed as an outcome of ethnic discordance between physicians and patients.<sup>16</sup> There is also an increase in trust from the patient for race concordance cases.<sup>20</sup> However, the

association of trust and satisfaction with physicians is bidirectional; mainly related to patients preferred to see a physician that they trust which cycles back with patients reporting better satisfaction with their physicians.<sup>20</sup> Another important benefit observed in the study conducted by Street, Malley, Cooper and Haidet<sup>22</sup> is the better compliance of patients in race concordance cases. The several benefits of race concordance have been demonstrated as effective in the research mentioned above<sup>20-22</sup> and therefore more underrepresented ethnic groups should be recruited in the dietetic profession.

## **2.6 Intervention to Increase Ethnic Diversity in Dietetics Profession**

As mentioned above, the dietetic profession is not very diverse and the factors related to low ethnic diversity should be identified. By understanding the underlying cause of low diversity in the profession, interventions can be implemented to recruit more RD's from the underrepresented ethnic groups. There are only a couple of studies that have researched the factors related to underrepresentation of ethnic minority groups and the interventions to increase ethnic minority students in the dietetic profession.

In one of the studies, Bolibol<sup>23</sup> examined the factors that influenced students to choose dietetics between minority and non-minority students. Bolibol<sup>23</sup> found that minority students who chose dietetics as their major are mostly influenced by a professor/teacher. This finding is similar to the observations of the qualitative analysis conducted by Felton et al.<sup>24</sup> titled "African-American Students' Perceptions of Their Majors, Future Professions, and the Dietetics Major and Profession: A Qualitative Analysis". In Felton's<sup>24</sup> study, both dietetics and non-dietetics students revealed that their career choices was recommended and influenced by a high school guidance counselor or college advisor, faculty member, or recruiter. Some students mentioned that they were

told to avoid certain majors because African-American individuals have not been successful in those majors<sup>24</sup>. This can be negative towards the recruiting of ethnic minority students to the dietetic profession especially when we have low percentage of minority ethnic dietitians. In the Felton's<sup>24</sup> research, it is also observed that college major decision was "more often made earlier (junior high and high school and freshman year of college) rather than later (sophomore or junior year of college)". Another research study conducted by Tan<sup>25</sup> reported that media is the most influential initial source of information regarding dietetics as a career choice. These observations are important finding as the intervention using multimedia to recruit more underrepresented RDs may be targeted at high school teachers or professors to promote the major of dietetics among minority groups. An example of introducing the dietetics profession to the high school teachers and students is the "Health Sciences Recruitment and Retention Program",<sup>26</sup> conducted by the College of Health at Florida International University in Miami. In this program,<sup>26</sup> a presentation which was "produced using predominantly minority health care professionals who discussed their job responsibilities, places of employment, educational background, and salaries" including dietetics profession were shown to the teachers and students in high schools and community colleges. At the end of the program, there is an increase in its black enrollment from zero students in 1985 to four students in 1989.

Most of the studies regarding recruiting and retaining ethnic minority students in the dietetic professions ask the participants to suggest possible interventions to increase diversity in dietetics. A study conducted by Suarez<sup>6</sup> summarized a few possible interventions to be: include participation of ethnic minority dietetic students in career days, early recruitment in high school and promote dietetics major in colleges and

universities with high enrollment of ethnic minorities. Another telephone survey conducted by Greenwald and Davis<sup>27</sup> concluded that some of the possible interventions to increase diversity are (1) increase the program flexibility by increasing the time frame allowed for completion of requirements to qualify as RD, (2) increase visibility of dietetics through outreach to high schools and lower-division nutrition courses in college, (3) provide tutoring or mentoring program for minority students, (4) increase internship opportunities as a whole as well as for ethnic minority students (5) raise salaries, prestige and independence of dietetics career to attract more ethnic minority students to the dietetics profession, and (6) offer more financial support for the ethnic minority students.

These studies<sup>6,23-27</sup> provide useful insights to factors that influence enrollment of ethnic minority students to the dietetic profession as well as possible interventions to increase the diversity in dietetics. Only one of the research studies mentioned above were conducted in the recent 5 years time frame and therefore the observations may not portray the truth behind the low diversity in dietetics today. More research studies should be conducted to further look into the possible cause of low ethnic diversity in dietetics profession and the possible intervention to recruit more underrepresented ethnic students into the field of dietetics and increase the number of RDs from minority groups.

## **2.7 Research Purpose**

As mentioned above, ethnic disparities in health care profession may lead to health disparities of minority groups in the US. There are limited literatures that identify the factors of low diversity in the dietetic profession. It is hypothesized that by identifying the factors of low enrollment of minority students in the dietetic major and difficulties faced by dietetic students in the process of becoming a RD; the root cause of

low ethnicity in dietetic profession can be pinpointed. This survey study aims to (1) further investigate the factors influencing career choices among minority groups and (2) identify the difficulties faced by current minority dietetic interns in the process of being qualified as an RD. After collection of results, possible interventions targeting on recruitment of minority dietetic students and helping minority dietetic students to become RD can be suggested.

## **CHAPTER 3**

### **METHODS**

#### **3.1 Design**

This thesis is a pilot descriptive survey research. Three sets of survey were given to (1) current dietetic students from minority ethnic groups in colleges and universities in Tennessee State, (2) current undergraduate students not majoring in dietetics from minority ethnic groups at University of Memphis, and (3) current dietetic interns from minority ethnic groups enrolled in Dietetic Internship in Tennessee State respectively. The results of the Survey 1 and 2 were used to identify the possible factors of low enrollment of minority groups in dietetic major in tertiary institutes. The results of the Survey 2 were used to identify the possible barriers faced by current minority dietetic interns when applying to the Dietetic Internship as part of the requirement to qualify as a RD.

#### **3.2 Subjects**

The subjects of Survey 1 for this study were the students from minority ethnic groups (Asian, African American, Hispanic, Native Hawaiian, Pacific Islander and American Indian) aged 18 and above who are currently enrolled in Didactic Programs in Dietetics (DPD) in any college or university in Tennessee State. The only limitations for this group of subjects would be race, age and current major in a Tennessee tertiary institution. The subjects were not limited by their gender, socioeconomic status or marital status. The subjects were recruited through the director of each DPD in Tennessee State. The participation of the subjects is voluntary.

The subjects of Survey 2 for this study were the students from minority ethnic groups (Asian, African American, Hispanic, Native Hawaiian, Pacific Islander and American Indian) aged 18 and above who are currently enrolled in undergraduate major other than dietetics in University of Memphis. The only limitations for this group of subjects would be race, age and current major. The subjects were not limited by their gender, socioeconomic status or marital status. The subjects were recruited through the undergraduate professors and multicultural student organizations at University of Memphis. The participation of the subjects is voluntary.

The subjects of Survey 3 for this study are the Dietetic Interns from minority ethnic groups (Asian, African American, Hispanic, Native Hawaiian, Pacific Islander and American Indian) aged 18 and above who are currently enrolled in a Dietetic Internship Program in Tennessee State. The only limitations for this group of subjects would be race, age and active status as dietetic intern in any Dietetic Internship programs in Tennessee. The subjects are not limited by their gender, socioeconomic status or marital status. The subjects were recruited through the director of each Dietetic Internship programs in Tennessee State. The participation of the subjects is voluntary.

### **3.3 Intervention**

No intervention was used in this study. This is an observational study and survey was used to gather information.

### **3.4 Instrumentation**

The three sets of survey were designed using the online service at [www.qualtrics.com](http://www.qualtrics.com). Survey 1 and 3 were sent via email to the directors of DPD programs and Dietetic Internship programs in Tennessee State respectively to be forwarded to

potential subjects. Survey 2 was sent via email to undergraduate professors and multicultural student organizations at University of Memphis to be forwarded to potential subjects.

Survey 1 was designed to be completed in approximately 20 minutes. The questions addressed demographic information such as age, sex, ethnic classification and current class standing. One question asked when is the period of time when the dietetics career decision was made (elementary school, middle school, high school, college, etc). Other questions focused on the factors that influenced the career decision, mainly focusing on people, personal interest, media sources, and methods of first exposure to dietetic profession. Subjects also had the opportunity to list the difficulties faced during the dietetic career pathway such as career decision and enrollment to DPD programs and maintenance of good standing in class. Another question allowed subjects to suggest possible interventions to increase diversity in dietetic profession.

Survey 2 was designed to be completed in approximately 20 minutes. The questions addressed demographic information such as age, sex, ethnic classification and current class standing. One question asked when the period of time when the college major or focus of career decision was made (elementary school, middle school, high school, college, etc). Other questions focused on the factors that influenced the career decision, mainly focusing on people, personal interest, media sources, and methods of first exposure to dietetic profession. Subjects were asked if they have heard about the dietetics profession.

Survey 3 was designed to be completed in approximately 20 minutes. . The questions addressed demographic information such as age, sex, ethnic classification and



current progress in Dietetic Internship. One question asked the number of application trials attempted before acceptance to current Dietetic Internship program. One question asked the reasons of dietetic career decision. Other questions focused on the difficulties faced by dietetic interns along the pathway to qualify as a RD (making career decision, enrollment to DPD programs, maintenance of good standing in class, work experience opportunity during college, enrollment to Dietetic Internship programs and the process of current Dietetic Internship). Another question allowed subjects to suggest possible interventions to increase diversity in dietetic profession.

### **3.5 Procedures**

The three sets of survey were created using the free online service at [www.qualtrics.com](http://www.qualtrics.com). The surveys were tested to prove validity and appropriateness by the committee members of the thesis group. After approval, the surveys were sent to designated groups via emails obtained from directors of DPD programs and Dietetic Internship programs. The online survey stayed open for duration of two months to allow subjects to take the survey.

### **3.6 Ethical Considerations**

The consent form was displayed on the first page of the survey. Subjects had to give informal consent to start the survey. The survey was designed to only impose minimal risk to the subjects. The survey did not ask for any names or any sort of identity and contact information. No email addresses of subjects were obtained. The data collected will only be used for this research. The data will be kept in the safe box in the office of the committee chair for three years and the surveys will be deleted and disposed after three years.

### **3.7 Data Analysis**

All of the data was analyzed using the 21<sup>st</sup> version of Statistical Package for the Social Sciences (SPSS) software. If there is any statistical correlation, statistical significance will be determined when the P value is less than 0.05.

## **CHAPTER 4**

### **RESULTS**

#### **4.1 Demographics**

Seventeen undergraduate students majoring in Dietetics in any university in Tennessee voluntarily completed Survey 1. One respondent was excluded due to the ethnicity of American Caucasian. Majority of the respondents of Survey 1 are African American (81%) females (88%) who are currently junior (38%) or senior (38%). The demographics of the respondents of Survey 1 are shown in Table 1 (appendix).

Eleven undergraduate students from University of Memphis who are not majoring in Dietetics voluntarily completed Survey 2. Similar to group 1, the majority respondents of Survey 2 are African American (82%) females (73%) who are currently junior (36%) or senior (36%). The demographics of the respondents of Survey 2 are shown in Table 2 (appendix). These respondents are majoring in wide varieties of concentrations and table 3 (appendix) shows the breakdown of the undergraduate majors of the respondents.

Six dietetic interns from any Dietetic Internship in Tennessee voluntarily completed Survey 3. One respondent who are currently not enrolled in a dietetic internship is excluded from the analysis. All respondents for survey 3 are females and they are either from Asian ethnicity (60%) or African American ethnicity (40%). The demographics of the respondents of Survey 3 are shown in Table 4 (appendix).

#### **4.2 Period of Time When Current Major is Decided**

All three sets of surveys included a question to examine the period of time when the current major is decided. One dietetic student reported deciding his/her major as far back as he/she can remember. Two dietetic students and one undergraduate (non-

dietetics) student decided their major starting at junior high school which is earlier than most of the respondents. Most of the respondents decided their major during the freshmen and sophomore year in college (44% of dietetics students, 36% of undergraduate non-dietetics students, and 60% of dietetic interns). There are a total of three respondents who did not remember when they decided on their major. Table 5 (appendix) shows the period of time when current major is decided according to each category of respondents. Table 6 (appendix) shows the chi square test which was conducted using SPSS to determine the relationship between the group of respondents (dietetic students, undergraduate non-dietetic students, dietetic interns) and the period of time when current major is decided. The test shows that there were no differences in time of decision by types of respondents.

#### **4.3 Influence of College Major Decision**

All of the respondents were asked to rank the person who influences the selection of current college major with number one (1) being the strongest influence. Similar results were observed in the dietetic students group and undergraduate non-dietetic students group. Parent(s)/ family members and professor/ teacher were the most and second most picked greatest influences in these two groups. Ten students (63%) from survey 1 and eight students (73%) from survey 2 picked parent(s)/ family members as the strongest influence when making college major decision. Four dietetic students (25%) ranked professor/ teacher as the strongest influence. As for the dietetic intern group, two respondents (40%) picked advisor/counselor as the greatest influence. The respondents were allowed to rank multiple influences as the same effect of influence (i.e.: strongest (1)); therefore the sum is greater than 100%. Table 7-9 (appendix) present the influences of college major decision according to different response groups.

#### **4.4 Reasons Behind College Major Decision**

When asked about the reasons behind college major decision, most undergraduate non-dietetic respondents stated that they have interest in their college major. Some of the responses are “I love to dance”, “I love art and math and architecture”, “I am interested in acting” and “Psychology helps me learn about myself”. A few respondents were interested in the medical field, however more on the business, management and entrepreneur side. As for the dietetic students and dietetic interns, most of them (88% of dietetic students and 100% of dietetic interns) are interested in food and cooking as well as power of food and nutrition as possible disease treatment. Table 10 and 11 (appendix) displayed the different personal interests that influence dietetic students and dietetic interns to decide dietetics as their career focus.

#### **4.5 Career Values and Opportunities**

Most of the respondents from all three groups (94% of dietetic students, 73% of undergraduate non-dietetic students and 100% of dietetic interns) rated job security and job opportunities as extremely important career values. In addition, 94% of dietetic students also rated opportunity to help others and relationship of nutrition to health as extremely important career values. As for the undergraduate non-dietetics group, 73% valued management/ advancement opportunity extremely and 64% valued prestige of profession extremely. All dietetic interns respondent (100%) also agreed that management/ advancement opportunity is extremely important career values. Some respondents from all groups rated opportunity for private practice as not at all important career value. Table 12-14 (appendix) presents the importance of each career values among all three groups of respondents.

## **4.6 Difficulties Faced along Tertiary Education as an Ethnic Minority**

### **Student/Intern**

All three groups of respondents were asked to list the difficulties that they have faced along their tertiary education and pathway as an ethnic minority student/intern. Some of the difficulties faced among the undergraduate non-dietetic respondents are choosing and deciding the right career choice, maintaining good standing in class, balancing between work and school, financial limitations, procrastinations and having trust from others. As for the dietetic students, many students have listed similar difficulties which include lack of availability of internship, trying to maintain good grades, limited amount of nutrition courses sessions offered per semester and the stereotyping of ethnic minorities having higher prevalence of disease and poor nutrition lifestyle. One dietetic student mentioned that he/she has not struggled as an ethnic minority student in the field and sometimes find it helpful as the many scholarship and job positions highly appreciate diversity applicants. There are a few who stated they have not face difficulties as ethnic minority students and the difficulties they faced are unrelated to ethnicity. Three dietetic interns (60%) stated they had difficulty obtaining dietetic-related jobs and internships during undergraduate prior to application to dietetic internship program as well maintaining good standing in class. One dietetic intern respondent stated she has not faced any difficulties so far.

#### **4.7 Knowledge and Perceptions of Dietetics Profession**

The undergraduate non-dietetics respondents were asked if they have heard about the dietetics profession. Eight respondents (73%) reported never heard of the dietetics profession. Of the three respondents (27%) who have heard about the dietetics profession, one stated first heard about the profession at a career center and another respondent first heard about dietitian in a nutrition course. Respondents who are familiar with the profession stated the positive qualities that come to mind are “being healthy” and “helping people with their health”. As for the negative qualities of the dietetic profession, one stated “a lot of research” and another stated “sick people”.

Thirty-three percent of the dietetic students stated that they first heard about the dietetic profession from a nutrition course. Three students (19%) first learned about dietetics from family members and two students (13%) first learned about dietetics from a college catalog. Three students learned about dietitian from social media including television, magazine/journal and books. None of the dietetic students selected radio, career day/fair or career center as the first source of exposure to the dietetic profession. For the dietetic interns, 40% of the respondents first heard about the profession in a nutrition course and another 40% of the respondents learned it the first time from a college catalog. Another respondent learned it from television. Social media such as radio, magazine/journal and books are not a popular source of first exposure among the dietetic interns. Similar to dietetic students, none of the dietetic interns first learn dietitian at a career day/fair or career center. Table 15 and 16 (appendix) shows the breakdown of different first source of exposure to the dietetic profession among the dietetic students and dietetic interns.

For the dietetic students group, some of the positive qualities mentioned includes: “being able to give patient care without the demands and stress of medication administration”, “showing others how to live a healthy lifestyle”, “nutrition can cure and/or improve the health statues of people”, “helping people achieve optimal health”, and “educating people on healthy choices that can be beneficial to their health”. In summary, most of the dietetic student respondents valued the positive qualities of dietitian to be able to provide care and guidance to improve quality of life of the community without bearing the higher risk and responsibilities to administer medication. A few dietetic interns mentioned “helping people live a healthy lifestyle” as one of the positive qualities of the profession. Some other positive qualities stated are “problem solvers, team players” and “many different areas of practice”.

As far as the negative qualities of dietetic profession in the mind of undergraduate students, some of the responses include: “they don’t get paid as much as doctors or some nurses”, “the courses are so limited in time and availability”, “not enough internship”, “the degree almost requires as much work as a medical doctor degree”, “a lot of people do not take nutrition seriously”, and “dominated by one race and the lack of public awareness about the value of this profession”. Some of the negative perceptions of dietetic profession according to the dietetic intern respondents include: “ low job openings, low pay, low reimbursement, less prestige, associated with working in the kitchen/cafeteria”, “ lack of diversity”, “lack of public knowledge about the career field”, “not respected in the hospitals”, and “the importance of nutrition in prevention and treatment for diseases is underestimated”.



#### **4.8 Low Ethnic Diversity in Dietetics Profession**

The statistics from AND<sup>2</sup> shows that there is a very low percentage of dietitians from minority ethnic groups. When asked to state possible reasons for low ethnic diversity in dietetic profession, six out of nine undergraduate non-dietetics students who responded to this question stated that there is a lack of information about this major and many may not be aware of the dietetic program. One undergraduate non-dietetic student responded there is a possibility that ethnic minority students may not find the profession culturally interesting. Two other respondents stated that it may be due to students are not interested and already decided to focus on other career field.

On the other hand, dietetic student respondents think that the reasons behind low ethnic diversity may due to there is not enough information about dietetic profession available, lack of availability of dietetic internship, competitiveness to get into internship, dietetic profession not being recognized as a rewarding career, lack of realization of importance of nutrition and the presences of dietetic profession as well as the existing stereotype of dietitian profession being a predominantly white female oriented profession. The dietetic intern respondents have similar points of view as the dietetic students. They stated that many ethnic minorities are not aware of dietitian as a career option and there is a lack of promotion and exposure of the profession in schools. One respondent stated that the reason might be ethnic minority students are emphasizing on money making careers such as medicine, law and business and another respondent pointed out that it can be very expensive to be an RD as it requires four years degree plus an internship.

#### **4.9 Possible Intervention to Increase Ethnic Diversity in Dietetic Profession**

All three groups of respondents were asked to suggest some possible interventions to increase ethnic diversity in the dietetic profession. Most of the respondents provided similar suggestions which include increasing publicity of the profession, promote the benefits of being in the dietetic profession, increase exposure of the profession in high schools, college, and universities, offering minority scholarships, provide seminars or hold fairs about dietetics, introduce nutrition courses in high schools and community centers, use social media as marketing tools, and encourage current ethnic minority dietitians to be spoke person in career fairs.

#### **4.10 Dietetic Internship**

The dietetic intern respondents were asked two additional questions in the survey study. One out of the five dietetic intern respondents had attempted three application trials before being accepted to current dietetic internship program. When asked to rate the extent of influences of certain factors while selecting a dietetic internship program, all respondents stated that the length of the program and the amount of tuition and fees matter the most. Eighty percent of respondents also rated emphasis of the program and availability and amount of stipend/scholarship as extremely important factor. The respondents were allowed to rate multiple factors as having the same effect of influence (i.e.: to a large extend); therefore the sum is greater than 100%. Table 17 (appendix) presents the extent of influences of different factors when the dietetic interns select an internship program.

## **CHAPTER 5**

### **DISCUSSION**

The results to this study have provided some useful insights about the low ethnic diversity in the dietetics profession. The results obtained in this research show some similarities as well as slight differences between the observations obtained from similar studies conducted more than five years ago. Some characteristics of ethnic minority students in both dietetics and non-dietetics major were revealed.

The statistical analysis showed that there is no difference in the period of time when college major is decided among the three response groups. Most of the ethnic minority students (39% of all respondents) decided on their major during the freshmen and sophomore year in college. About 25% of the respondents decided on their college major before entering college. This observation is very similar to the Felton's<sup>24</sup> research, where college major decision was "more often made earlier (junior high and high school and freshman year of college) rather than later (sophomore or junior year of college)". This indicates that the marketing and promotion of dietetic profession should be focusing on ethnic minority students in junior high and high school; before they start making decision on their majors and concentrations.

According to the survey results, the most important factor that influenced undergraduate students (both dietetics and non-dietetics) when they choose their college major is parent(s)/family members. This observation is slightly different from the two previous studies conducted by Bolibol<sup>23</sup> and Felton<sup>24</sup> in which both studies observed the greatest influences being academic personnel such as professor, teacher, high school guidance counselor, college advisor, faculty member, and recruiter. Since parents and

family members are greatly influencing students' career focuses, it may be beneficial to involve parent(s) and family members during the process of choosing a college major. One example would be to organize career seminars targeting at parent(s) to provide information about the dietetic profession and clear up any misconception about the profession (if any). Although it is not selected by most students as greatest influences, professor, teacher, advisor and counselor still play important roles when students are deciding their major. Therefore, it is critical to make sure that these academic personnel are familiar with the dietetic profession so that they can guide students who might be interested in dietetics along the way to become a registered dietitian.

It is apparent that there is a lack of exposure of the dietetic profession among the minority ethnic groups as 73% of the undergraduate non-dietetic respondents stated they have not heard of dietitian and did not aware of the existence of this profession. Thirty-three percent of dietetic students and 40% of dietetic intern respondents first heard about dietetics in a nutrition course. Not many high schools provides nutrition courses in US and this can indicate that these students are not exposed to the profession until closer to or after college enrollment. It is surprising that none of the dietetic students and dietetic interns selected career day or career center as their initial source of information regarding dietetics as a career choice. Exposure of the dietetic profession via media is also seemed to be low as only two respondents first learn about dietetics from the television. This observation is different that of Tan<sup>25</sup> reported in her research that media is the most influential initial source of information regarding dietetics as a career choice.

To further understand the low enrollment of minority ethnic students in the dietetics major, dietetic students and interns were asked to describe the negative qualities

of the dietetic profession. Overall, dietetic students and dietetics interns feel that dietitians are underappreciated and overlooked in terms of significance of nutrition as a major factor in preventing and curing acute and chronic diseases. There are also many shortfalls in the pathway of becoming a Registered Dietitians including lack of availability of nutrition courses and dietetic internships. Some of the ethnic minority dietetic students and dietetic interns stated that they have difficulties maintaining good grades and obtaining dietetic-related jobs and internships during undergraduate prior to application to dietetic internship program. Lack of diversity is also one of the negative qualities of dietetic professions mentioned by the dietetic students and dietetic interns.

The respondents were asked to suggest possible interventions to increase diversity in dietetics. The suggestions mentioned by the respondents in this study are very similar to those mentioned in previous study conducted by Suarez<sup>6</sup> and Greenwald & Davis<sup>27</sup>. The suggested interventions are early recruitment in high school, include participation of ethnic minority dietitian/dietetic students in career days, offer minority scholarships, promote dietetics major in colleges and universities with high enrollment of ethnic minorities and increase visibility of dietetics by adding nutrition courses in high schools and community centers.

Key findings of this study are useful in designing and developing effective interventions to recruit more underrepresented RDs from the minority ethnic groups. One of the great idea is to have RDs from minority ethnic groups to represent the profession to talk to junior high and high school students during career day and career fairs to provide positive exposure of the profession.

Another ideal marketing strategy is to provide high school teachers or professors with specific information about the profession including nature of work, skills requirement, education pathway, compensations, etc. to promote the major of dietetics among minority groups. Informative and interactive marketing tools/ models should be created by the government and professional organizations such as AND. One successful example that was implemented previously is the “Health Sciences Recruitment and Retention Program”<sup>26</sup> conducted by the College of Health at Florida International University in Miami. In this program,<sup>26</sup> a detailed presentation on job responsibilities, places of employment, educational background, and salaries of dietetics profession were shown to the teachers and students in high schools and community colleges. At the end of the program, there is an increase in its black enrollment from zero students in 1985 to four students in 1989. Similar program should be implemented using the observations obtained from this study.

It is also important to retain current ethnic minority dietetics students by providing some assistance to alleviate the difficulties faced by current dietetic students and dietetic interns. Some ideas include provide tutoring or mentoring program for minority students, increase internship opportunities for ethnic minority students, and offer more financial support for the ethnic minority students.

## **5.1 Limitations**

This pilot descriptive survey research conducted in Tennessee has one limitation, a small sample size. The participation rate is much less than anticipated especially in the non-dietetics undergraduate students group. Since the surveys are specifically targeted at the ethnic minority students, offering extra credits or other incentives to participants is

considered not fair to the Caucasian students in class. The surveys were also sent to a third party before directed to the eligible participants, causing some possible unforeseeable miscommunication and a decrease in efficiency. The small sample size may not represent the population and may not be statistically significant, however; this study is able to set a strong background for further research projects focusing on ethnicity in the dietetics profession. The findings of this study can be added to the current literature pool to provide an more up-to-date data. Future research on this topic can use other methods of research such as focus group, telephone interview, systematic review, meta-analysis, etc.

## **5.2 Conclusion**

The minority ethnic groups are expected to increase significantly to about 53% of total population in year 2050 according to the Pew Research Center<sup>8</sup>. Health disparities among ethnic groups have been observed currently in the US and should be looked into seriously before the expected shift of ethnicity demographics in US in the near future. Ethnic minorities are more likely to have diseases such as heart disease, cancer, stroke, asthma, AIDS, obesity as compared to their Caucasian counterparts.<sup>4</sup> Research studies<sup>20-22</sup> have shown importance and benefits of race concordance in healthcare providers in improving health outcomes and possibility of reducing the health disparities among ethnic groups. The lack of ethnic diversity in the dietetics profession is significant and should be addressed quickly as dietitians are healthcare professionals who play very important role in preventing and controlling acute and chronic diseases which are usually more prevalent in the ethnic minority groups.

This pilot study provides understandings on the characteristics of ethnic minority students when deciding college major and future career focus. Interventions derived from the observation of this study are (1) increase marketing and publicity of the dietetics profession to junior high and high school students, academic personnel (professor, teacher, counselor, college advisor and faculty member) as well as parent(s) or family members of the students (2) encourage RDs from ethnic minority group to be the representative and spokesperson of the profession to students in junior and high schools (3) assist current ethnic minority dietetic students by providing tutoring or mentoring program, increase undergraduate internship opportunities, and offer scholarship/financial support (4) add nutrition courses in high schools and community centers.



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## APPENDIX A

### TABLES (TABLE 1- 17)

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**Table 1.** Demographics of Survey 1 Respondents.

<b>Characteristics</b>	<b>n (%)</b>
<b>Sex</b>	
Male	2 (13)
Female	14 (88)
<b>Age</b>	
18-22	6 (38)
23-27	3 (19)
28-32	5 (31)
33-37	0 (0)
38 and older	1 (6)
Not specify	1 (6)
<b>Ethnicity</b>	
African American	13 (81)
Asian	1 (6)
Caucasian (Non- US)	0 (0)
Hispanic	1 (6)
Native American	0 (1)
Pacific Islander	0 (1)
Combination, please specify	1 (6) - [Native American, African American, Irish]
<b>Class Standing</b>	
Freshman	1 (6)
Sophomore	3 (19)
Junior	6 (38)
Senior	6 (38)

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**Table 2.** Demographics of Survey 2 Respondents.

<b>Characteristics</b>	<b>n (%)</b>
<b>Sex</b>	
Male	3 (27)
Female	8 (73)
<b>Age</b>	
18-22	5 (45)
23-27	1 (9)
28-32	1 (9)
33-37	0 (0)
38 and older	1 (9)
Not specify	3 (27)
<b>Ethnicity</b>	
African American	9 (82)
Asian	0 (0)
Caucasian (Non- US)	0 (0)
Hispanic	0 (0)
Native American	0 (0)
Pacific Islander	0 (0)
Combination, please specify	1 (9) - [Ethiopian and Yemeni]
Other, please specify	1 (9) - [Nubian]
<b>Class Standing</b>	
Freshman	2 (18)
Sophomore	1 (9)
Junior	4 (36)
Senior	4 (36)

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**Table 3.** Undergraduate Majors of Respondents of Survey 2.

<b>Major</b>	<b>n (%)</b>
Psychology	1 (9)
Social Work	1 (9)
Business Management	1 (9)
Dance	1 (9)
Health Administration	2 (18)
Architecture	1 (9)
Communication	1 (9)
Undecided	2 (18)
Not Specify	1 (9)

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**Table 4.** Demographics of Survey 3 Respondents.

<b>Characteristics</b>	<b>n (%)</b>
<b>Sex</b>	
Male	0 (0)
Female	5 (100)
<b>Age</b>	
18-22	0 (0)
23-27	5 (100)
28-32	0 (0)
33-37	0 (0)
38 and older	0 (0)
Not specify	0 (0)
<b>Ethnicity</b>	
African American	2 (40)
Asian	3 (60)
Caucasian (Non- US)	0 (0)
Hispanic	0 (0)
Native American	0 (0)
Pacific Islander	0 (0)
Combination, please specify	0 (0)
Other, please specify	0 (0)

**Table 5.** Period of Time when Current Major is Decided.

<b>Period of Time</b>	<b>Dietetic Students n (%)</b>	<b>Undergraduate (Non-Dietetics) n (%)</b>	<b>Dietetic Interns n (%)</b>
As far back as I can remember	1 (6)	0 (0)	0 (0)
Elementary School	0 (0)	0 (0)	0 (0)
Junior High School	2 (13)	1 (9)	0 (0)
High School	1 (6)	2 (18)	1 (20)
After high school but before college	1 (6)	0 (0)	0 (0)
Freshmen/Sophomore in college	7 (44)	4 (36)	3 (60)
Junior/ Senior in college	2 (13)	2 (18)	0 (0)
After graduating from college	1 (6)	0 (0)	1 (20)
I do not remember	1 (6)	2 (18)	0 (0)

**Table 6.** Chi Square Test for Period of Time When Current Major is Decided.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.739 <sup>a</sup>	14	.847
Likelihood Ratio	10.994	14	.687
Linear-by-Linear Association	.088	1	.767
N of Valid Cases	32		

a. 23 cells (95.8%) have expected count less than 5. The minimum expected count is .16.

**Table 7.** Influences of College Major Decision – Dietetic Students.

Influences	Effect of Influences (1 being strongest)						
	1	2	3	4	5	6	7
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Parent(s)/ Family Members	10 (63)	1 (6)	1 (6)	1 (6)	1 (6)	0 (0)	0 (0)
Professor/Teacher	4 (25)	1 (6)	1 (6)	7 (44)	2 (13)	0 (0)	0 (0)
Registered Dietitian(s) that you have encountered with	3 (19)	3 (19)	3 (19)	0 (0)	3 (19)	0 (0)	2 (13)
Friend(s)	2 (13)	4 (25)	4 (25)	2 (13)	0 (0)	0 (0)	1 (6)
Other dietetic student	1 (6)	2 (13)	3 (19)	3 (19)	1 (6)	2 (13)	0 (0)
Advisor/Counselor	1 (6)	2 (13)	0 (0)	1 (6)	5 (31)	4 (25)	0 (0)
Recruitment Officer	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (25)	8 (50)

**Table 8.** Influences of College Major Decision – Undergraduate (Non-Dietetic).

Influences	Effect of Influences (1 being strongest)						
	1	2	3	4	5	6	7
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Parent(s)/ Family Members	8 (73)	0 (0)	1 (9)	1 (9)	0 (0)	0 (0)	0 (0)
Professor/Teacher	1 (9)	1 (9)	2 (18)	2 (18)	0 (0)	0 (0)	0 (0)
Friend(s)	0 (0)	5 (45)	1 (9)	1 (9)	0 (0)	0 (0)	0 (0)
Advisor/Counselor	0 (0)	1 (9)	2 (18)	1 (9)	0 (0)	0 (0)	0 (0)
Recruitment Officer	0 (0)	0 (0)	0 (0)	0 (0)	2 (18)	1 (9)	0 (0)
Other dietetic student	0 (0)	0 (0)	0 (0)	0 (0)	1 (9)	2 (18)	0 (0)
Registered Dietitian(s) that you have encountered with	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (27)

**Table 9.** Influences of College Major Decision – Dietetic Interns.

Influences	Effect of Influences (1 being strongest)						
	1	2	3	4	5	6	7
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Advisor/Counselor	2 (40)	0 (0)	1 (20)	0 (0)	0 (0)	0 (0)	0 (0)
Professor/Teacher	1 (20)	3 (60)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Registered Dietitian(s) that you have encountered with	1 (20)	1 (20)	0 (0)	1 (20)	1 (20)	0 (0)	0 (0)
Friend(s)	1 (20)	0 (0)	0 (0)	1 (20)	0 (0)	0 (0)	0 (0)
Parent(s)/ Family Members	0 (0)	0 (0)	1 (20)	0 (0)	0 (0)	0 (0)	0 (0)
Other dietetic student	0 (0)	0 (0)	0 (0)	0 (0)	1 (20)	1 (20)	0 (0)
Recruitment Officer	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (20)



**Table 10.** Personal Interests that Influence Career Decision (Dietetic Students)

Personal Interests	To a large extend	To a moderate extend	To some extend	To little extend	Not at all
	n (%)	n (%)	n (%)	n (%)	n (%)
Food and cooking	14 (88)	1 (6)	0 (0)	0 (0)	1 (6)
Power of food and nutrition as possible disease treatment	14 (88)	1 (6)	0 (0)	0 (0)	1 (6)
Food habits and/or cultural differences	13 (81)	2 (13)	1 (6)	0 (0)	0 (0)
Health, disease and/or health care	13 (81)	2 (13)	0 (0)	1 (6)	0 (0)
Health and prevention	13 (81)	1 (6)	0 (0)	1 (6)	1 (6)
Teaching and/or health promotion	11 (69)	4 (25)	0 (0)	1 (6)	0 (0)
Food procurement, production and services	11 (69)	2 (13)	2 (13)	1 (6)	0 (0)
Counseling and behavioral change	10 (63)	3 (19)	3 (19)	0 (0)	0 (0)
Societal problems and their solutions	8 (50)	7 (44)	0 (0)	1 (6)	0 (0)
Science	8 (50)	3 (19)	2 (13)	2 (13)	1 (6)
Management of people and resources	7 (44)	5 (31)	0 (0)	1 (6)	3 (19)
Sport and fitness	4 (25)	6 (38)	3 (19)	2 (13)	1 (6)
Agriculture and food produce	4 (25)	4 (25)	4 (25)	2 (13)	2 (13)

**Table 11.** Personal Interests that Influence Career Decision (Dietetic Interns)

Personal Interests	To a large extend	To a moderate extend	To some extend	To little extend	Not at all
	n (%)	n (%)	n (%)	n (%)	n (%)
Food and cooking	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Power of food and nutrition as possible disease treatment	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Health and prevention	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)
Food habits and/or cultural differences	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)
Counseling and behavioral change	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)
Teaching and/or health promotion	3 (60)	2 (40)	0 (0)	0 (0)	0 (0)
Health, disease and/or health care	2 (40)	3 (60)	0 (0)	0 (0)	0 (0)
Science	2 (40)	1 (20)	2 (40)	0 (0)	0 (0)
Societal problems and their solutions	1 (20)	3 (60)	1 (20)	0 (0)	0 (0)
Management of people and resources	1 (20)	3 (60)	0 (0)	1 (20)	0 (0)
Sport and fitness	0 (0)	3 (60)	1 (20)	1 (20)	0 (0)
Food procurement, production and services	0 (0)	3 (60)	1 (20)	1 (20)	0 (0)
Agriculture and food produce	0 (0)	3 (60)	0 (0)	2 (40)	0 (0)

**Table 12.** Career Values and Opportunities (Dietetic Students)

Values	Extremely Important	Very Important	Neither Important nor Unimportant	Very Unimportant	Not at all Important
	n (%)	n (%)	n (%)	n (%)	n (%)
Job security	15 (94)	1 (6)	0 (0)	0 (0)	0 (0)
Job opportunities available	15 (94)	1 (6)	0 (0)	0 (0)	0 (0)
Opportunity to help others	15 (94)	1 (6)	0 (0)	0 (0)	0 (0)
Relationship of nutrition to health	15 (94)	0 (0)	0 (0)	0 (0)	0 (0)
Work nature of dietetics (interact with people, flexible, etc)	14 (88)	2 (13)	0 (0)	0 (0)	0 (0)
Financial rewards	13 (81)	1 (6)	2 (13)	0 (0)	0 (0)
Diverse work environment	11 (69)	5 (31)	0 (0)	0 (0)	0 (0)
Opportunity to work as a part of multidisciplinary team	11 (69)	4 (25)	1 (6)	0 (0)	0 (0)
Opportunity for private practice	11 (69)	0 (0)	1 (6)	2 (13)	2 (13)
Management/ advancement opportunity	10 (63)	4 (25)	1 (6)	1 (6)	0 (0)
Prestige of profession	6 (38)	2 (13)	7 (44)	0 (0)	1 (6)







**Table 13.** Career Values and Opportunities (Undergraduate- Non-Dietetic)

Values	Extremely Important	Very Important	Neither Important nor Unimportant	Very Unimportant	Not at all Important
	n (%)	n (%)	n (%)	n (%)	n (%)
Job security	8 (73)	3 (27)	0 (0)	0 (0)	0 (0)
Job opportunities available	8 (73)	3 (27)	0 (0)	0 (0)	0 (0)
Management/ advancement opportunity	8 (73)	2 (18)	1 (9)	0 (0)	0 (0)
Prestige of profession	7 (64)	3 (27)	1 (9)	0 (0)	0 (0)
Work nature (interact with people, flexible, etc)	6 (55)	5 (45)	0 (0)	0 (0)	0 (0)
Opportunity to help others	6 (55)	5 (45)	0 (0)	0 (0)	0 (0)
Opportunity to work as a part of multidisciplinary team	6 (55)	2 (18)	2 (18)	0 (0)	0 (0)
Financial rewards	5 (45)	5 (45)	1 (9)	0 (0)	0 (0)
Diverse work environment	5 (45)	5 (45)	1 (9)	0 (0)	0 (0)
Opportunity for private practice	2 (18)	3 (27)	5 (45)	0 (0)	1 (9)




**Table 14.** Career Values and Opportunities (Dietetic Interns)

Values	Extremely Important	Very Important	Neither Important nor Unimportant	Very Unimportant	Not at all Important
	n (%)	n (%)	n (%)	n (%)	n (%)
Job security	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Job opportunities available	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Management/ advancement opportunity	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Opportunity to help others	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)
Relationship of nutrition to health	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)
Work nature of dietetics (interact with people, flexible, etc)	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)
Prestige of profession	2 (40)	3 (60)	0 (0)	0 (0)	0 (0)
Diverse work environment	2 (40)	3 (60)	0 (0)	0 (0)	0 (0)
Financial rewards	2 (40)	3 (60)	0 (0)	0 (0)	0 (0)
Opportunity for private practice	2 (40)	2 (40)	1 (20)	0 (0)	0 (0)
Opportunity to work as a part of multidisciplinary team	1 (20)	3 (60)	1 (20)	0 (0)	0 (0)

**Table 15.** First Source of Exposure to the Dietetic Profession (Dietetic Students)

Sources		Response	Total
Nutrition course		5	33%
College Catalog		2	13%
Television		1	7%
Magazine/Journal		1	7%
Books		1	7%
Radio		0	0%
Career Day/Fair		0	0%
Career Center		0	0%
Other (Please specify)		5	33%
- Family member(s)		3	19%
- Another student		1	7%
- Nursing associate		1	7%

**Table 16.** First Source of Exposure to the Dietetic Profession (Dietetic Intern).

Sources		Response	Total
Nutrition course		2	40%
College Catalog		2	40%
Television		1	20%
Radio		0	0%
Magazine/Journal		0	0%
Career Center		0	0%
Books		0	0%
Career Day/Fair		0	0%

**Table 17.** Influences When Selecting a Dietetic Internship

<b>Influences</b>	<b>To a large extend</b>	<b>To a moderate extend</b>	<b>To some extend</b>	<b>To little extend</b>	<b>Not at all</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Length	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Tuition & fees	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Emphasis (clinical, community, management, etc)	4 (80)	0 (0)	0 (0)	1 (20)	0 (0)
Availability and amount of stipend/scholarship	4 (80)	1 (20)	0 (0)	0 (0)	0 (0)
Location	3 (60)	1 (20)	0 (0)	1 (20)	0 (0)
Part time/Full time	2 (40)	1 (20)	1 (20)	0 (0)	1 (20)
Diversity of the preceptors	1 (20)	1 (20)	2 (40)	1 (20)	0 (0)
Competitiveness of the program	1 (20)	4 (80)	0 (0)	0 (0)	0 (0)
Have connection with DI director or students at the DI	1 (20)	1 (20)	1 (20)	2 (40)	0 (0)
Starting date of the DI	0 (0)	1 (20)	2 (40)	0 (0)	2 (40)

## APPENDIX B

### SURVEY 1- DIETETIC STUDENT



The purpose of this research is to (1) further investigate the factors influencing career choices among minority groups and (2) identify the difficulties faced by current minority dietetic interns in the process of being qualified as a Registered Dietitian (RD).

This is a research project being conducted by Xin Yi Ter, a graduate student in Clinical Nutrition at the University of Memphis. You are invited to participate in this research project because you are from a minority ethnic groups (Asian, African American, Hispanic, Native Hawaiian, Pacific Islander, American Indian or international students) and enrolled in Didactic Program in a university in Tennessee state.

Your participation in this research study is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time. If you decide not to participate in this study or if you withdraw from participating at any time, you will not be penalized.

The procedure involves filling an online survey that will take approximately 20 minutes. Your responses will be confidential and we do not collect identifying information such as your name, email address or IP address. The survey questions will be about your career choices and difficulties that you have encountered along your tertiary education.

We will do our best to keep your information confidential. All data is stored in a password protected electronic format. To help protect your confidentiality, the surveys will not contain information that will personally identify you. The results of this study will be used for scholarly purposes only and may be shared with University of Memphis representatives.

If you have any questions about the research study, please contact Xin Yi Ter at [xter@memphis.edu](mailto:xter@memphis.edu). This research has been reviewed according to University of Memphis IRB procedures for research involving human subjects.

ELECTRONIC CONSENT: Please select your choice below.

Clicking on the "agree" button below indicates that:

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age
- you are a minority as described above

If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

ELECTRONIC CONSENT: Please select your choice below. Clicking on the "agree" button below indicates that:  
▪ you have ready the above information ▪ you voluntarily agree to participate ▪ you are at least 18 years of age  
If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

- ☐ Agree
- ☐ Disagree



**What is your age?**

**What is your gender?**

- ☐ Male
- ☐ Female

**Which ethnic group do you most closely identify with?**

- ☐ African American
- ☐ Asian
- ☐ Caucasian (Non-US)
- ☐ Hispanic
- ☐ Native American
- ☐ Pacific Islander
- ☐ Combination, Please Specify
- 
- ☐ Other, Please Specify
- 

**What is your current class standing?**

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior

**When did you make the decision to pursue a dietetics career?**

- ☐ As far back as I can remember
- ☐ Elementary school
- ☐ Junior high school
- ☐ High school
- ☐ After high school but before college
- ☐ Freshmen/Sophomore in college
- ☐ Junior/Senior in college
- ☐ After graduating from college
- ☐ I do not remember

**From where did you first heard about the dietetic profession?**

- ☐ Career Day/Fair
- ☐ Career Center
- ☐ College Catalog
- ☐ Books
- ☐ Magazine/Journal
- ☐ Nutrition course
- ☐ Radio
- ☐ Television
- ☐ Other (Please specify)

**When you think of the dietetics profession, what positive qualities come to mind?**

**When you think of the dietetics profession, what negative qualities come to mind?**

**Who influenced your selection of dietetics as your career focus? Please rank all that apply with number one (1) being your strongest influence.**

- ☐ Advisor/Counselor
- ☐ Professor/Teacher
- ☐ Parent(s)/ Family Members
- ☐ Other dietetic student
- ☐ Friend(s)
- ☐ Recruitment Officer
- ☐ Registered Dietitian(s) that you have encountered with

**To what extent that the following personal interests influence your career decision in dietetics profession?**

	To a large extend	To a moderate extend	To some extend	To little extend	Not at all
Agriculture and food produce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Counseling and behavioral change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food and cooking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food habits and/or cultural differences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food procurement, production and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health, disease and/or health care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health and prevention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of people and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Power of food and nutrition as possible disease treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Societal problems and their solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sport and fitness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching and/or health promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Rate the following career values and opportunities in terms of their importance as you considering your career option .**

	Extremely Important	Very Important	Neither Important nor Unimportant	Very Unimportant	Not at all Important
Diverse work environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job opportunities available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management/advancement opportunity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity for private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity to help others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity to work as a part of multidisciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prestige of profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relationship of nutrition to health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work nature of dietetics (interact with people, flexible, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Please list any difficulties faced during the dietetic career pathway especially as an ethnic minority. (eg: making career decision, getting accepted to DPD program, maintaining good standing in class, etc)**

**According to the statistics from Academy of Nutrition and Dietetics, there are very low percentage of dietitians from minority ethnic groups. What are your thoughts on why other ethnic minority students are not choosing dietetics as a major and career?**

**What are some possible intervention suggestions that you have to increase ethnicity diversity in the dietetic profession?**

## APPENDIX C

### SURVEY 2- UNDERGRADUATE (NON-DIETETICS)



Health and Sport Sciences

The purpose of this research is to (1) further investigate the factors influencing career choices among minority groups and (2) understand perceptions of minority students on the dietetics profession.

This is a research project being conducted by Xin Yi Ter, a graduate student in Clinical Nutrition at the University of Memphis. You are invited to participate in this research project because you are from a minority ethnic groups (Asian, African American, Hispanic, Native Hawaiian, Pacific Islander, American Indian or international students) and enrolled in a non-dietetics major in University of Memphis.

Your participation in this research study is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time. If you decide not to participate in this study or if you withdraw from participating at any time, you will not be penalized.

The procedure involves filling an online survey that will take approximately 20 minutes. Your responses will be confidential and we do not collect identifying information such as your name, email address or IP address. The survey questions will be about your career choices and difficulties that you have encountered along your tertiary education as well as perceptions on the dietetics profession

We will do our best to keep your information confidential. All data is stored in a password protected electronic format. To help protect your confidentiality, the surveys will not contain information that will personally identify you. The results of this study will be used for scholarly purposes only and may be shared with University of Memphis representatives.

If you have any questions about the research study, please contact Xin Yi Ter at [xter@memphis.edu](mailto:xter@memphis.edu). This research has been reviewed according to University of Memphis IRB procedures for research involving human subjects.

ELECTRONIC CONSENT: Please select your choice below.

Clicking on the "agree" button below indicates that:

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age
- you are a minority as described above

If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

ELECTRONIC CONSENT: Please select your choice below. Clicking on the "agree" button below indicates that: ▪ you have read the above information ▪ you voluntarily agree to participate ▪ you are at least 18 years of age If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

- ☐ Agree
- ☐ Disagree

**What is your age?**

**What is your gender?**

- ☐ Male
- ☐ Female

**Which ethnic group do you most closely identify with?**

- ☐ African American
- ☐ Asian
- ☐ Caucasian (Non-US)
- ☐ Hispanic
- ☐ Native American
- ☐ Pacific Islander
- ☐ Combination, Please Specify
- 
- ☐ Other, Please Specify
- 

**What is your current class standing?**

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior

**What is your major?**

**When did you make the decision to focus in your current college major?**

- ☐ As far back as I can remember
- ☐ Elementary school
- ☐ Junior high school
- ☐ High school
- ☐ After high school but before college
- ☐ Freshmen/Sophomore in college
- ☐ Junior/Senior in college
- ☐ After graduating from college
- ☐ I do not remember

**Who influenced your selection of college major? Please rank all that apply with number one (1) being your strongest influence.**

- ☐ Advisor/Counselor
- ☐ Professor/Teacher
- ☐ Parent(s)/ Family Members
- ☐ Other dietetic student
- ☐ Friend(s)
- ☐ Recruitment Officer
- ☐ Registered Dietitian(s) that you have encountered with

**Please list the reasons behind your college major decision. (Eg: interested in computer, following parents' footstep, etc)**

**Rate the following career values and opportunities in terms of their importance as you considering your college major/career option .**

	Extremely Important	Very Important	Neither Important nor Unimportant	Very Unimportant	Not at all Important
Diverse work environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job opportunities available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management/advancement opportunity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity for private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity to help others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity to work as a part of multidisciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prestige of profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work nature (interact with people, flexible, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Have you heard about the dietetics profession?**

- ☐ Yes
- ☐ No



If Question 10 Answer is YES,

**From where did you first heard about the dietetic profession?**

- ☐ Career Day/Fair
- ☐ Career Center
- ☐ College Catalog
- ☐ Books
- ☐ Magazine/Journal
- ☐ Nutrition course
- ☐ Radio
- ☐ Television
- ☐ Other (Please specify)

**When you think of the dietetics profession, what positive qualities come to mind?**

**When you think of the dietetics profession, what negative qualities come to mind?**

**Please list any difficulties you have faced along your tertiary education pathway especially as an ethnic minority. (eg: making career decision, getting accepted to the program, maintaining good standing in class, etc)**

**According to the statistics from Academy of Nutrition and Dietetics, there are very low percentage of dietitians from minority ethnic groups. What are your thoughts on why ethnic minority students are not choosing dietetics as a major and career?**

**What are some possible intervention suggestions that you have to increase ethnicity diversity in the dietetic profession?**

If Question 10 Answer is NO,

**Please list any difficulties you have faced along your tertiary education pathway especially as an ethnic minority. (eg: making career decision, getting accepted to the program, maintaining good standing in class, etc)**

**According to the statistics from Academy of Nutrition and Dietetics, there are very low percentage of dietitians from minority ethnic groups. What are your thoughts on why ethnic minority students are not choosing dietetics as a major and career?**

**What are some possible intervention suggestions that you have to increase ethnicity diversity in the dietetic profession?**

## APPENDIX D

### SURVEY 3- DIETETIC INTERN



The purpose of this research is to (1) further investigate the factors influencing career choices among minority groups and (2) identify the difficulties faced by current minority dietetic interns in the process of being qualified as a Registered Dietitian (RD).

This is a research project being conducted by Xin Yi Ter, a graduate student in Clinical Nutrition at the University of Memphis. You are invited to participate in this research project because you are from a minority ethnic groups (Asian, African American, Hispanic, Native Hawaiian, Pacific Islander, American Indian or international students) and enrolled in Didactic Program in a university in Tennessee state.

Your participation in this research study is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time. If you decide not to participate in this study or if you withdraw from participating at any time, you will not be penalized.

The procedure involves filling an online survey that will take approximately 20 minutes. Your responses will be confidential and we do not collect identifying information such as your name, email address or IP address. The survey questions will be about your career choices and difficulties that you have encountered along your tertiary education.

We will do our best to keep your information confidential. All data is stored in a password protected electronic format. To help protect your confidentiality, the surveys will not contain information that will personally identify you. The results of this study will be used for scholarly purposes only and may be shared with University of Memphis representatives.

If you have any questions about the research study, please contact Xin Yi Ter at [xter@memphis.edu](mailto:xter@memphis.edu). This research has been reviewed according to University of Memphis IRB procedures for research involving human subjects.

ELECTRONIC CONSENT: Please select your choice below.

Clicking on the "agree" button below indicates that:

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age
- you are a minority as described above

If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

ELECTRONIC CONSENT: Please select your choice below. Clicking on the "agree" button below indicates that:  
▪ you have read the above information ▪ you voluntarily agree to participate ▪ you are at least 18 years of age  
If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

- ☐ Agree  
☐ Disagree

**What is your age?**

**What is your gender?**

- ☐ Male
- ☐ Female

**Which ethnic group do you most closely identify with?**

- ☐ African American
- ☐ Asian
- ☐ Caucasian (Non-US)
- ☐ Hispanic
- ☐ Native American
- ☐ Pacific Islander
- ☐ Combination, Please Specify
- ☐ Other, Please Specify

**Are you enrolled in a Dietetic Internship and postgraduate degree combined program?**

- ☐ Yes
- ☐ No

**How many application trials did you attempt before accepted to current Dietetic Internship program?**

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ more than 5

**When did you make the decision to pursue a dietetics career?**

- ☐ As far back as I can remember
- ☐ Elementary school
- ☐ Junior high school
- ☐ High school
- ☐ After high school but before college
- ☐ Freshmen/Sophomore in college
- ☐ Junior/Senior in college
- ☐ After graduating from college
- ☐ I do not remember

**From where did you first heard about the dietetic profession?**

- ☐ Career Day/Fair
- ☐ Career Center
- ☐ College Catalog
- ☐ Books
- ☐ Magazine/Journal
- ☐ Nutrition course
- ☐ Radio
- ☐ Television
- ☐ Other (Please specify)

**When you think of the dietetics profession, what positive qualities come to mind?**

**When you think of the dietetics profession, what negative qualities come to mind?**

**Who influenced your selection of dietetics as your career focus? Please rank all that apply with number one (1) being your strongest influence.**

- ☐ Advisor/Counselor
- ☐ Professor/Teacher
- ☐ Parent(s)/ Family Members
- ☐ Other dietetic student
- ☐ Friend(s)
- ☐ Recruitment Officer
- ☐ Registered Dietitian(s) that you have encountered with

**To what extent that the following personal interests influence your career decision in dietetics profession?**

	To a large extend	To a moderate extend	To some extend	To little extend	Not at all
Agriculture and food produce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Counseling and behavioral change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food and cooking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food habits and/or cultural differences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food procurement, production and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health, disease and/or health care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health and prevention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of people and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Power of food and nutrition as possible disease treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Societal problems and their solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sport and fitness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching and/or health promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Rate the following career values and opportunities in terms of their importance as you considering your career option .**

	Extremely Important	Very Important	Neither Important nor Unimportant	Very Unimportant	Not at all Important
Diverse work environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job opportunities available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management/advancement opportunity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity for private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity to help others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunity to work as a part of multidisciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prestige of profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relationship of nutrition to health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work nature of dietetics (interact with people, flexible, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**To what extend that the following factors influence your decision when selecting a Dietetic Internship?**

	To a large extend	To a moderate extend	To some extend	To little extend	Not at all
Competitiveness of the program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Starting date of the DI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Part time/Full time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have connection with DI director or students at the DI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diversity of the preceptors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Length	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tuition & fees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability and amount of stipend/scholarship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emphasis (clinical, community, management, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Please list any difficulties faced by you along the pathway to qualify as a RD (eg. making career decision, enrollment to DPD programs, maintenance of good standing in class, work experience opportunity during college, enrollment to Dietetic Internship programs and the process of current Dietetic Internship).**

**According to the statistics from Academy of Nutrition and Dietetics, there are very low percentage of dietitians from minority ethnic groups. What are your thoughts on why other ethnic minority students are not choosing dietetics as a major and career?**

**What are some possible intervention suggestions that you have to increase ethnicity diversity in the dietetic profession?**



## **APPENDIX E**

### **IRB APPROVAL**

**The University of Memphis**

#### **Institutional Review Board**

The University of Memphis Institutional Review Board, FWA00006815, has reviewed and approved your submission in accordance with all applicable statuses and regulations as well as ethical principles.

PI NAME: Xin Yi Ter

CO-PI: Satish Kedia, Terezie Mosby, Terra Smith

PROJECT TITLE: Diversity in Dietetics

FACULTY ADVISOR NAME (if applicable): Margaret Williams

IRB ID: #2642

APPROVAL DATE: 7/23/2013

EXPIRATION DATE: 7/22/2014

LEVEL OF REVIEW: Expedited

**Thank you,**

**Ronnie Priest, PhD**

**Institutional Review Board Chair**

**The University of Memphis.**